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Challenges for conceptualising EU MOOC for vulnerable learner groups

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Abstract: This exploratory paper picks up elements from the European Commission's educational vision and philosophy behind *Opening up Education*, the resulting initiative of the OpenupEd.eu MOOC platform and takes this as a starting point to look at potential challenges for developing MOOCs that include vulnerable learner groups. In order to align the future conceptualization of MOOCs with the vision and philosophy of Europe, potential tensions of contemporary and future education are listed. The current dichotomy of xMOOC and cMOOC are used to mark some of the unexplored MOOC territory. Practical answers to contemporary, ICT supported educational challenges are provided as options to fuel the debate. The challenges and options for future online education initiatives are based on insights and ideas of international scholars and researchers reflecting on potential barriers for learners and online education. This paper aims to stimulate discussion of the potential for new educational technologies to ensure social inclusion for virtual and physical vulnerable learner groups.

Introduction

Education is in a transformative state. Globally, the roll-out of ICTs is pushing the boundaries of mass education. Education provision is a focal point inside and outside the European Union (EU). Of the various types of education within the EU, higher education and lifelong learning have been prioritised. Aligning with work being done internationally to help provide educational for all, the authors of this paper think it is imperative that ICT driven educational transformation, specifically the drive towards Massive Open Online Courses (MOOCs), should take into account vulnerable learner groups that are at risk of falling further behind as the Knowledge Society emerges.

Includ-Ed, an EU-funded research project exploring successful actions for educational and social inclusion in Europe, focused on five vulnerable groups at risk of social exclusion related to the educational opportunities available to them: women, young people, migrants, minority cultural groups (e.g. Roma) and people with disabilities. These five groups also comprise the definition of vulnerable groups as interpreted by the authors of this paper, and these groups are within the influence of EU policies that might drive the design and roll-out of EU MOOCs. Accordingly, they are important learner groups that should be taken into account when strategising ICT-infused education.

The impact of ICT and innovation on education is a global phenomenon. Since 2005, the worldwide rise of mobile devices, social media, and learning that is facilitated by new mobile and social technologies, has grown exponentially (Kop & Bouchard, 2011; de Waard, 2013). With the recent addition of a new form of open, online learning called a MOOC, the creation of new educational forms (both instructional and technological) is compelling educational institutes and policy makers around the world to rethink education. Education is thus in a state of transformational flux due to new, pervasive educational technologies. This transformation can be used as a way to start and renew inclusive education that can reach all EU citizens. In order to achieve inclusivity, strategies must be put in place to address the challenges that threaten the ability of vulnerable populations to access, participate in, and benefit from education.

The EU MOOC setting

A 2013 European Commission initiative called 'Opening up Education' proposes "actions towards more open learning environments to deliver education of higher quality and efficacy and thus contributing to the Europe 2020 goals of boosting EU competitiveness and growth through better skilled workforce and more employment" (European Commission, 2013b, p. 2). A recent, practical example of a strategic, educational EU partnership has been the launch of the European MOOC platform by the European Association of Distance Teaching Universities.

EU MOOC initiative OpenupEd

In response to the perceived potential of MOOCs for maximising access to education, European partners in 11 countries have joined forces to launch the first pan-European MOOCs initiative, with the support of the European Commission (OpenupEd, 2013a). The EU MOOC portal <http://www.openuped.eu> offered 174 courses five months after its initial launch in April 2013. The portal does mention that the courses are "open to people" of all ages, contexts and students combining work, domestic duties or other activities, nowhere is it explicitly stated which groups are being targeted (OpenupEd, 2013b). This is one area in which the EU MOOC initiative

could better enact inclusion through direct outreach to vulnerable groups as well as by providing these groups with equal opportunities to engage with and achieve personal goals via MOOC courses.

The OpenupEd initiative is a vision that aims at 'opening up' education for everyone with a platform that reflects European values of equity, quality and diversity. OpenupEd also claims to consider the variety of needs and circumstances of lifelong learners, along with the demands of a changing knowledge-based society (OpenupEd, 2013). However, there is no 'vulnerable European citizens and learners' strategy in place that could optimise the benefits of MOOCs for these vulnerable groups. Without clear indications as to which groups are being targeted with these initiatives, or a defined program that targets vulnerable learning groups, it is possible that people who could benefit from MOOCs will not participate in these initiatives. In a communication from the European Commission on 'Opening up Education', it is stated that:

Higher education faces a digital challenge: with the number of EU students set to rise significantly in the next decade, universities need to adapt traditional teaching methods and offer a mix of face-to-face and online learning possibilities, such as MOOCs..., which allow individuals to access education anywhere, anytime and through any device. But many universities are not ready for this change (European Commission, 2013b).

While the European Commission is aware of the need to get both universities and learners up to speed for the educational transformation that is taking place, challenges need to be shared and philosophical decisions need to be made in order for a strong vision and strategy to become a reality.

But what happens to this vision when an overarching MOOC platform is built, which is the case at present with the OpenupEd MOOC portal (2013a)? What is meant by cultural and linguistic diversity - one of the fundamental principles of the European Union - if vulnerable groups such as migrants come into the picture? What happens to youth, women, cultural minorities and people with disabilities who are likely to have differential access to computers and other ICT devices due to issues such as costs, discrimination or other barriers? With the launch of the OpenupEd MOOC platform, cultural and linguistic diversity might appear to be addressed, but there is more that can be done to ensure that educational options that fit all EU citizens are provided.

Europe 2020, the EU's growth strategy, has five ambitious objectives on employment, innovation, education, social inclusion and climate/energy. This strategy provides a good background for which we can discuss the implication of MOOCs, especially the EU MOOC platform and the initiative of OpenupEd overall (European Commission, 2013c). While these initiatives are highly commendable and timely, the authors of this paper find that the launched initiatives lack some of the EU policy recommendations made by other educational projects such as Includ-Ed (2011) which are concerned with vulnerable groups. The seeming lack of attention to inclusion of vulnerable groups in these new ICT-based educational initiatives risks creating unbalanced positive impact of the Europe 2020 strategy for EU citizens.

With more than 120 million people in the EU at risk of poverty or social exclusion (a figure equivalent to 24% of the entire EU population), EU leaders have pledged to bring at least 20 million people out of poverty and social exclusion by 2020 (European Commission, 2013c). Clearly defining and targeting vulnerable learning groups with these large-scale educational efforts is one strategy for pushing towards these goals.

The importance of targeting and including vulnerable groups in MOOCs

Vulnerable learning groups are defined here in keeping with the European Commission's factors contributing to poverty and social exclusion (2013c). The authors of this paper are also defining vulnerable learning groups in keeping with the groups established by Includ-Ed, namely women, young people, migrants, cultural groups (e.g. Roma) and people with disabilities (Includ-Ed, 2011). These groups need to be considered in their physical, as well as in their virtual reality. MOOCs organised by institutions previously limited to specific regions now attract (more) learners from other regions. As such the concept of migrants can be expanded to all learners that register and follow a MOOC course provided by an institution located in a different part of the world. These learners could be seen as virtual learner migrants. As more and more open learning and MOOC offerings are emerging from specific regional or national efforts, like the OpenupEd initiative, this concept of the virtual migrant will resonate even further. Many learners are crossing national boundaries by participating in these courses, virtual or otherwise.

The Includ-Ed project was a response to the realisation that one out of every five young people in the EU is at risk of poverty, and this is directly linked to their employment opportunities and to the educational levels attained. This situation can be reversed; research can provide key elements for European policy making to inform this process and achieve the 2020 Strategy objective in education: to reduce the share of early school leavers from 15% to 10% (Includ-Ed, 2011, p. 1). Europe 2020 only leaves a time span of six years to reach the aforementioned goals, which clearly underlines the urgency of rolling out appropriate strategies for inclusion, or at least to ensure indicators are embedded in the EU MOOC courses to increase understanding of the impact, if any, of MOOC courses on the vulnerable groups defined by the EU.

One of the Includ-Ed report (2011) policy recommendations is simple and of direct interest to the current reshaping of education on all levels: base educational reforms and policies on successful actions in order to achieve school success for all children. Where Includ-Ed focused more on compulsory education, adult education also remains high on the EU agenda. One of the EU Adult education central priorities is how to attract and support more adults back into lifelong learning; this is contrasted against the background of decreasing participation in adult learning. Participation in adult lifelong learning currently sits at 8,9% with the EU benchmark set at 15% by 2020 (European Commission, 2013e). As such the importance of merging these priorities and embedding them in new educational initiatives such as Opening up Education and Openuped.eu is crucial in order to obtain the EU goals of attainment and lifting up vulnerable groups via education. This will get both young and adult learners of all ages on board as target groups.

Problem

Contemporary education is moulded by a variety of new factors. The learning and teaching processes of today are impacted by the use of social media, new mobile technologies and pedagogical formats, among other things. Due to these new technologies and emerging formats, education is forced into a process of transformation. de Waard *et al.* (2011a) have argued that combining technologies that embrace the complexity of knowledge production with pedagogical formats that allow learners to build knowledge by filtering that complexity will encourage a new educational balance to emerge. This balance will possibly enable the construction of a redesigned educational landscape that better fits this Knowledge Age, whereby the word 'possibly' refers to Davis and Sumara's (2008) statement that "an education that is understood in complexity terms cannot be conceived in terms of preparation for the future. Rather, it must be construed in terms of participation in the creation of possible futures" (p. 43). As such it can be said that the MOOC format allows for massive participation leading to the creation of possible educational futures, especially when including the aforementioned vulnerable groups as active participants in the creation of possible futures.

In addition to these new strains in education, the old challenges with regard to excluded, vulnerable learner groups continue to exist; in fact, in some cases they are becoming more urgent. These challenges include access to basic social services, including education, as well as gender discrimination, lack of accommodation for people with disabilities, racism, xenophobia, and employability. As such many tensions accompany this educational transformation both within and beyond the European regions. Portmess (2013) raised a crucial point when she stated that

Knowledge in itself without a larger narrative of purpose lacks moral meaning, and with the 'first world' imprimatur given to the courses and the hopes and expectations that student data will be a test bed for educational experiments, the creation of an unspoken postcolonial project uncomfortably shadows the hope for democratized access to education (p. 6).

As the global economic crisis stays omnipresent, more European citizens and particularly vulnerable learner groups are becoming isolated as education is losing the larger narrative of purpose, especially for these vulnerable learner groups. An educational solution befitting the latest Technology Enhanced Learning opportunity must be sought to mitigate this isolation in order to begin drawing additional learners from these vulnerable learner groups. But before such a long term solution is given shape, it is crucial to acknowledge the challenges involved in such a transformation and choose which to tackle as priorities.

Finding the right mix: cMOOC, xMOOC, borderless MOOC and EU-MOOC

The debate on the meaning and definition of a MOOC is ongoing as MOOCs are an emerging field. At present MOOCs are divided into two types (Rodriguez, 2012; Siemens, 2012a; Clow, 2013): cMOOC and xMOOC, each having their own technological and pedagogical characteristics. A third hybrid group is emerging which is attempting to combine characteristics of both, but for the purposes of this paper the discussion will be limited to xMOOCs and cMOOCs. The rationale behind describing both formats is to provide an idea of their possible strengths. In very rough terms, the xMOOC is in general more formal, most of the time comprising 'top-down' approaches to teaching and learning, whereas the cMOOC is said to be more collaborative, or 'bottom-up.' Each of these approaches has an effect on the teaching and learning structure of the MOOC, and as such, also influences the potential impact, reach and support of vulnerable groups. xMOOCs are evident in many of the MOOCs offered by Coursera, Udacity, and others.

McAuley *et al.* (2010) provided the following definition for a MOOC which also mentions the self-organising factor related to self-directed learning:

"A MOOC integrates the connectivity of social networking, the facilitation of an acknowledged expert in a field of study, and a collection of freely accessible online resources. Perhaps most importantly, however, a MOOC builds on the active engagement of several hundred to several thousand 'students' who self-organise their participation according to learning goals, prior knowledge and skills, and common interests" (p. 5)

The cMOOCs are usually regarded as MOOCs that are distributed and follow the connectivist theory as it is put forward by Siemens (2005). The main features are that learners are in control of the content created and knowledge is distributed across connections or networks; knowledge is also generated by the participants creating and sharing artifacts. This approach allows learners to come forward as experts in certain areas, share their personal expertise with other experts or peers and collectively grow in the topics covered by the MOOC or its participants. But this also means the participating learner groups need to be more digitally skilled in order to take charge of the learning or to produce learning objects based on their own contexts. They must also possess enough self-esteem to dare to create and to share their insights. Examples of cMOOCs include CCK08 and MobiMOOC.

A cMOOC does not necessarily put one expert in charge of the course. The course content can be produced and offered by several peers or experts collaboratively, or it can be built up from scratch by letting the participants make up the syllabus and resulting curriculum themselves. One example of this, and an interesting experiment overall, would be to put vulnerable groups in charge of creating a MOOC on how to be successful in an EU-delivered MOOC. The vulnerable learning group would define their own learning agenda, define the learning objectives, and design the MOOC on how to be successful in an EU MOOC (a meta-MOOC, if you will). This experiment would generate, presumably, empowerment on the part of these vulnerable learning groups towards their own learning as well as reveal any disconnects that might exist between the EU MOOC and the learning needs of these vulnerable learning groups. More importantly, this is an example of what a cMOOC might look like.

xMOOC started off as more US-related MOOC platforms such as Coursera, EdX and Udacity, where online learning is provided as a service and institutes can purchase usage and the tools from the platform provider. These MOOCs adopt a more traditional cognitive-behaviorist lecture and knowledge dissemination approach to learning and in some sense only provide a scalable digitised version of traditional learning where the instructor provides the content (Rodriguez, 2012). Anderson (2013) added that in order to reach scalability xMOOCs digitise teachers on video and use machine scoring of quizzes, thus morphing lectures, discussions, tutorials and feedback from classroom student-teacher interaction into student-content interaction. In most cases this approach does not allow the learners to provide content to the central core of the course. Because the expert is the one taking control of the course, the course content inevitably mirrors the thoughts, language use and cultural ethics of the expert, making the viewpoints on the topic less diverse. Nevertheless, if indicators or guidelines are provided that have an evidence-based positive effect on learning done by vulnerable groups, xMOOC can successfully turn around the lives of vulnerable groups as well. This can help keep these groups from the brink of poverty and ensure their inclusion in society overall by providing lifelong learning options that accommodate their participation.

Another interesting option is to consider the concept of a 'borderless' MOOC. The term 'borderless education' is used to describe educational provision that crosses conventional boundaries of time, space and geography (D'Antoni, 2006). Informal borderless education as mentioned by Cunningham et al. (2000) may be the direction of the future. It might be relevant to MOOCs, as borderless education is linked to the emergence of new providers and markets in higher education. Borderless education has been picked up by UNESCO in an effort to consider implications. It might seem counterintuitive to view these MOOCs as bordered or national or even regional environments, but they are designed in and reflect the cultural (including gender), linguistic, and educational imperatives of their countries of origin. In a sense they have borders, so investigating the implications of borderless education is worthwhile.

A strategic cross-pollination of the xMOOC and cMOOC formats, possibly emphasising borderless education, might result in meaningful, life changing courses for vulnerable groups. This cross-pollination of MOOC formats is undoubtedly happening in the EU MOOC courses currently gathered in the Openuped.eu platform. But until successful strategies are in place, suggestions need to be made and research needs to be conducted to help develop new or improve upon current MOOC strategies.

Tackling challenges

Portmess (2013) makes a strong point for the necessity to consciously direct MOOCs in a direction that fits the philosophical aim of the intended educational solution.

In the myriad positions on MOOCs that have emerged — from utopian hopes for greater access to education by students traditionally barred from such education to skeptical arguments about hype, disruption to traditional learning models and knowledge fragmentation — the irresolution in how we should think about MOOCs and their still to be realized potential reflect paradoxes of education as it globalizes, where (free) knowledge is a precious export of powerful institutions and a course — whether on artificial intelligence or circuits and electronics — is more than a course (p. 3).

In order to create a starting point to develop an online learning strategy which includes vulnerable learner groups, potential challenges must be listed and solutions must reflect the philosophical aim that provides the

“larger narrative of purpose.” Each of the following 12 MOOC challenges is situated within research, and is accompanied by possible suggestions to tackle these challenges, all keeping vulnerable groups in mind.

Digital and Social exclusion(s)

One area of social exclusion in the technological era relates to the digital divide. However, this term covers many factors. There are “multiple divides which relate to a variety of factors such as: age; gender; ‘ethnic clustering’; uncertainty of financial conditions; work insecurity; and social insecurity” (Mancinelli, 2007, p. 7). Looking at this wide array of factors, Willems and Bossu (2012) suggested that the focus to address these educational challenges should be “on social inclusion rather than simply on the digital divide” (p. 188). Reaching social inclusion can only be obtained by planning a consciously inclusive education from early on, and by embedding inclusive strategies for all vulnerable groups. This could be achieved by giving all groups an active voice, empowering them to contribute their ideas, and by listening to their experience and perception of the MOOC being rolled out. Digital initiatives such as ‘Opening up Education’ will be crucial in mitigating the current 60% of nine year olds in the EU who are in schools which are still not even digitally equipped (European Commission, 2013b). This lack of digital equipment (e.g. computers, Internet) has a direct effect on their participation in the educational opportunities being provided by MOOCs, and indeed the race to create a knowledge society.

Increasing diversity of learner groups

Non-participation in adult and lifelong learning is deeply entrenched in ‘trajectories’ based on class, gender, generation, ethnicity and geography, among other factors, which are established at an early age (Tuckett & Aldridge, 2009). With the rise of MOOCs, global audiences - specifically virtual, potentially vulnerable learners - are starting to become more important as potential learners. Even though there is a rhetoric that MOOCs will offer opportunity to learners from developing countries in the EU who currently lack direct access to learning opportunities, in reality they may well be serving only the ‘privileged’ who already have access to digital technologies and international language learning opportunities, or otherwise are more easily able to access information about MOOCs that lead them to join a course (Liyanagunawardena, Williams, & Adams, 2013).

In order to overcome this, the digital literacies that accompany MOOC participation need to be taught and made measurable to track the reach of MOOCs among migrants, women, youth, specific cultures and disabled learners from all backgrounds. Europe has a long tradition in setting up and evaluating indicators and the new OpenUpEd.eu environment might provide additional indicators for reach, as well as success for learners belonging to vulnerable groups. These indicators need to be offered both as preliminary stand alone learning opportunities in conjunction with, or prior to, each MOOC *and* scaffolded into the MOOC itself. Indicators such as this, that address the digital literacies needed to be successful in these open learning formats, will, presumably, make participation by these vulnerable learning groups more predictable and successful.

Formal and informal learning

There is a continuum between formal university- and higher education-driven MOOCs versus more informal, grassroots courses. Research shows that there is a greater uptake of informal kinds of online learning opportunities, and that the more informal the nature of the online learning activity, the more the factors beyond involuntary exclusion, become important (Eynon & Helsper, 2011). Additionally Eynon and Helsper (2011) mention that informal learning is the area in which there is the largest proportion of unexpected learners in the examination of digital inclusion and exclusion. These are learners that might have not otherwise been accounted for in more formal learning options. This area of ‘last minute’ learners and the degree of informality warrants greater attention.

A MOOC can have informality embedded in its format. However, in a UNESCO (2012) policy paper, regrettably, only new types of the more formal xMOOCs are mentioned (Coursera, Udacity and edX). Looking at the courses currently provided by the OpenupEd platform, the content offered also seems more formal, and attuned less to vocational education, or courses aimed at basic, overall education (for example, effectively dealing with unemployment challenges, how to re-enter the job market, etc.). If most MOOCs are targeted at or are dominated by the already educated, then they risk further segregating these learners from more vulnerable learner groups. Special attention must be directed to ensure that the course focus, content, and inclusion strategies reflect the needs of these vulnerable learner groups.

Local versus global

The tension between local and global regions is increased as digital communication has become a global reality. Termed by Wellman (2002) as ‘glocalisation’ in relation to the overlapping spheres of society, technology, and the World Wide Web, this concept has application to the blurred boundaries that exist in MOOCs. This glocalisation of education can simultaneously serve to perpetuate the status quo of existing power relations from one region to the next, as mentioned by Willems and Bossu (2012, p. 186). In order to avoid the disappearance of local knowledge and cultures into the void created by mainstream topics and education, special attention needs to be given to both the experts as well as the citizens from those regions and language groups, as well as

specific vulnerable cultures (e.g. Roma). Without a specific strategy to increase participation by these vulnerable cultures and learning groups, ideally in a course designed implicitly to preserve local knowledge and culture, the gradual erosion and eventual disappearance of this knowledge and culture is all but guaranteed. Education of this sort can counteract that trend through inclusion.

North – South postcolonial tensions

Education in society always reflects the values of the dominant political ideology and this is true as well in MOOCs. In the West, this dominant ideology is neoliberalism (Apple, 2006) which concerns free market economics, constant consumerism and individualism, and it is inevitably reproduced in schools. Viruru (2005) adds that dominant ideologies of how children and youth grow and develop have become another ‘truth’ of colonialism that permits no questioning, for the dominant educational model is seen as ‘the right one’. This postcolonial tension is increased by some MOOC courses that are currently promoted as providers of “education for all”, but in fact they are a new form of the postcolonial push of the North/West, as suggested by Portmess (2013). These postcolonial tensions might have an effect on learning outcomes for migrants coming from the Global South, as well as learners joining EU MOOC but residing in the Global South. Special care must be taken to include vulnerable learner groups, many of which have migrated from the Global South, in the design and implementation of MOOCs, to mitigate these potential effects.

Ubiquitous social technology and infrastructure

Any educational initiative that wants to increase inclusion of vulnerable learner groups through the use of technology must take account of the technology most ubiquitous in the target groups in question. MOOC environments need to offer integrated learning, including web-based as well as mobile options. This can be done by offering a mobile Learning Management System (UosakiS, 2013) or it can be achieved by using Cloud solutions. Ozdamli (2013) offered an interesting view on the effectiveness of the Cloud for developing positive seamless, ubiquitous learning perceptions. The Cloud software “gives the students the opportunity to communicate, cooperate, share and learn with their peers, teachers, and family members regardless of time and space” (Ozdamli, 2013, p. 605). Ozdamli mentioned that cross-platform software has the potential to allow education practitioners to provide mobile support to their learners’ learning endeavors, while offering similar functionality to non-mobile users via more traditional computing platforms. The Includ-Ed project suggested, in an attempt to provide for greater inclusion, diversifying support (tutor and peers) depending on the needs/capabilities of the learners involved. These ‘human’ support mechanisms, along with the use of ubiquitous technology, might help in increasing inclusion in these vulnerable learner groups.

Technology also has a social factor. Mobile technologies enable communication and collaboration (Traxler, 2010; Kukulska-Hulme & Jones, 2011) and “in those university programs where communication and collaboration are important, the added dimension of mobile interaction may soon be considered essential” (p.68). Communication and social cohesion will presumably promote greater resilience in these vulnerable learner groups in their participation; however, these social factors need to be explicitly included in the design of MOOCs.

Individual learning versus networked learning

Downes (2007) stated that “knowledge is distributed across a network of connections, and therefore that learning consists of the ability to construct and traverse those networks.” (p. 1, par. 2) In order to optimise learning, individuals must be made aware of self-directed learning (SDL) options. The need for SDL in online learning is emphasised by Song & Hill (2007). They mentioned that “students need to have a high level of self-direction to succeed in online learning environment” (p. 29) and they proceeded to state that “successful learning in every learning environment involves the use of effective learning strategies” (p. 34). Developing learning strategies is an important part of SDL. A reference is also made to the level of learner responsibility “for seeking assistance is also much more centered with the learner since they are directly involved in monitoring the process, and seeking resources to improve the situation as needed” (p. 36). Where turning to peers for help is an option within online learning, it can pose a problem for some individual learners, as this implies overcoming potentially personal barriers (self-esteem, ego, language); this emerged from the de Waard (2013) study when searching for the main interaction drivers in a MOOC.

To be able to engage in a productive conversation, “all parties need access to a common external representation of the subject matter that allows them to identify and discuss topics” (Sharples et al., 2007, p. 226). But this is a capacity/skill loaded ability: it includes language, personal courage and self-esteem, prior knowledge, being able to use the technology to exchange ideas, having literacy skills... especially in courses that attract international and non-native English speakers. It might be that for some MOOC participants, specifically those from vulnerable groups, this combination of social skills might be a threshold, keeping them from any learning that might be derived from collaborative learning. In order to scaffold learners from these groups to become active, confident MOOC participants, virtual communities might be set up, in parallel with the successful physical learning communities that were build and reported by Gatt, Ojala and Soler (2011).

Saadatmand and Kumpulainen's (2012) study looked into Personal Learning Environments (PLE) as a set of learner-defined tools and services in the ecology of Web 2.0. For their online ethnographic study, they investigated three MOOCs. Based on their data they concluded that "learning in open online environments as experienced in MOOC was quite positively perceived by many participants nonetheless, there were some difficulties for some of them in terms of technological competencies and managing time and resources which then gradually they learned how to cope them." (p. 271). Song & Hill (2007) also mentioned the digital skills challenge: "increasing learners' information literacy skills ... remains an issue that needs to be explored further" (p. 34), referring to critical thinking and retrieving relevant, valid information. In MOOCs information literacy skills become very important as the learners become active creators of content/resources, and need to sift through more information (Finis, 2009). Kop and Fournier (2011) picked this up as well, emphasising in their SDL in MOOC research that "some *literacies* have been identified that are critical for learners to be able to effectively direct their own learning in an open online networked environment" (p. 4), and all the literacies must be mapped (and described). These literacies need to be explicitly addressed for vulnerable learning groups in terms of learning strategies.

Yet literacy skills are not limited to information; they are also concerned with the use of technology and more specifically how the learner can use their technology to achieve their learning goals. Cross-cultural literacy might also be a factor that influences non-native speakers engaging in MOOCs, such as those in English (cf. Willems & Bossu, 2012). There may also be technical literacy challenges for women, girls, and youth who may be more unfamiliar with how to use technology because of a previous lack of access due to costs or cultural barriers. For these reasons, skills necessary to successfully follow and engage in a MOOC must be provided, supported and evaluated in order to ensure participation and empowerment of vulnerable groups.

Closed versus Open Educational Resources (OER)

OER can, and does include full courses, textbooks, streaming videos, exams, software, and any other materials or techniques supporting learning (OER Foundation, 2011, p. 1). But what is shared builds upon the content and ideas of its makers. However, what people think others need is not always that content which is really needed. This highlights the 'top-down' nature of institutionally-driven formal learning (cf. Willems & Bateman, 2011; Bateman & Willems, 2013). cMOOCs in particular defy this trend to some degree by making the curriculum and course content skeletal to allow for divergences, alterations, and iterations. However, it is the belief of the authors that open educational resources (OERs) allow for the greatest possible use and reuse in the MOOC context due to their availability. However, the definition of availability needs to include the ubiquity of the technology being used by the learners.

McGill (2010) noticed that in order to make all the OERs or any educational materials and courses fully open and accessible, materials will be accessible on alternative technologies, including mobile technologies. Willems and Bossu (2012) added that "the development of OER for mobile learning applications may be a more appropriate strategy to make OER widely available to students living in developing regions" (p. 193), yet being part of what could be described as the virtual migrants. However, this means that all the MOOC material provided by OpenupEd.eu should be made available under an open license, allowing learners from other regions to possibly edit them so other peers can more easily learn from those OER (e.g. translation, changes toward authentic context).

Digital identity

Identity negotiation and its relationship to societal power and status relations is also clearly implicated in the phenomenon of 'stereotype threat' for which there is extensive experimental documentation (OECD, 2010, pp. 87-88). This research is summarised by Schofield and Bangs (2006) as follows: "stereotype threat, the threat of being judged and found wanting based on negative stereotypes related to one's social category membership, can seriously undercut the achievement of immigrant and minority students" (p. 93). Additionally, the risk of providing content for the masses is that identities get lost and that only the societal, predominant identity is represented in both the texts, as in the visual material of the course content. This has a profound effect on learning, as identification is connected to motivation and learning. In order to avoid alienating learners from vulnerable groups, a diversity in identities should be provided in the examples accompanying MOOC content. A pre- and post-course screening tool enabling online course content and its active parts - specifically animations, actors, visuals or audio of any form - to be accounted for in order to ensure a balanced representation of the different identities (de Waard, 2009) comprising the vulnerable groups might be of interest. Additionally, course content and activity that promotes a diversity of identity should be encouraged.

Learner access and success

The systemic obstacles to access and success in MOOCs must be gathered in order to tackle them and insure inclusion for all. In order to do this the authors feel it is important that the promotion of 'equity of access and fair chances of success to all who are seeking to realise their potential through education, while eradicating all forms of unfair discrimination and advancing redress for past inequalities' (Council on Higher Education, 2013,

p. 27) needs to be a central goal. Low participation rates have implications for social and economic development, especially given poor completion rates in education. Furthermore, the gains made in equity of access need to be complemented by equity of outcomes, which – like CHE (2013) pointed out – includes coming to terms with the learning needs of the majority of the learners, in this case MOOC participants. The needs of the learners will result in higher access, but this is not enough. The most pressing result needed is success in order to safeguard the vulnerable groups from the downward spiral towards exclusion. Success is enabling vulnerable groups to actively take up a citizen role based – if only in part – on MOOC learning outcomes.

Global communication needs versus language barriers

The Council of Europe has consistently promoted the value of plurilingualism for *all* students, including migrant and vulnerable students (Little, 2010). However, at present, most international courses are either in written or spoken English. OpenupEd has multilingual courses which is a bonus for reaching a broader learner audience. The majority of assignments or interactions expected from the MOOC learners are also more text-based, increasing the threshold for those learners not familiar with the language of instruction used in the MOOC.

All of these potential challenges can be used as strategic points to transform the EU MOOC to encourage multilingual participation. One strategy would be to create smaller, open learning groups based on native languages or languages that the learners feel more comfortable in, in order to build learner resilience in participating in MOOCs.

Possible future strategies

Finding the right mix between the current MOOC subsets of xMOOC, cMOOC and borderless MOOC formats is crucial to find an optimal European-driven online learning solution for the majority of learners, including many of the vulnerable groups in society, that would form the basis of an EU MOOC.

In a connectivist format, MOOCs are informal and include a wider learner audience than traditional education (for example, no degrees needed to participate in the course). Both xMOOC and cMOOC must be made mobile-friendly, making it easier for people from developing regions, as well as mobile learners everywhere, to participate. MOOCs need to become more focused on collaborative, networked learning, as this will increase the peer-to-peer interactions enabling a more scaffolded learning environment. If content that is produced for or within MOOCs is made open, for example, as OERs, others can change that content to fit their context, or simply add an additional layer to the OER to make it accessible in several other languages.

Participation and dialogue must be at the centre of MOOC interactions. Dialogue is one human factor that is now possible on a greater scale than ever before across borders, beliefs, cultures and time. Communication, or dialogue, and living through experiences in a collaborative way are central to a connectivist or collaborative oriented MOOC. As MOOCs are a gathering of people with generally no prior connection, they have a unique social advantage that relates to a more open and connected way of thinking (de Waard *et al.*, 2011b). This relates to Downes' (2007) idea that the learning activities we undertake when we conduct practices in order to learn are more like growing or developing ourselves and our society in certain (connected) ways. "To stay viable, open systems maintain a state of non-equilibrium...they participate in an open exchange with their world, using what is there for their own growth...that disequilibrium is the necessary condition for a system's growth" (Wheatley, 1999, p. 78-79). This constant flux, with attention to context and personal experience and background should be an inherent part of every future EU-MOOC.

Borderless MOOCs based on the concept of borderless education (Cunningham *et al.*, 2013) are an important option to consider, especially for communities linguistically not well represented in the more better known MOOC offerings. In order to ensure MOOC openness and inclusiveness, EU collaboration is key. True learner participation needs to be ensured, enabling all citizens to keep themselves out of the pitfalls of the knowledge society (e.g. poverty, exclusion).

Conclusion

The Massive Open Online Course format or MOOC has the potential to address many of the above mentioned issues if the format is consciously built to do so. MOOCs have only emerged during the last six years. The insights into the risks as well as the capacities of MOOCs are becoming transparent which will enable a more democratic and citizen strengthening format to be built. Without vision and strong educational decisions, MOOCs might reflect institutionalised patterns of power and authority, thus alienating those groups that are vulnerable even more from a successful education (Portmess, 2013).

The MOOC format is now mature enough to be optimised for the challenges that all of us face – as global learners, teachers, and researchers – during these times of financial and educational crisis. With the newly launched EU initiative of Opening up Education for all, and its subsequent MOOC portal, there is an opening to build a roadmap to transform existing MOOC so that vulnerable groups can benefit from them on equal terms,

to build instruments and indicators that enable participant success, and to build future MOOCs that are in tune with the inclusive European vision towards vulnerable groups, thus reaching the EU 2020 objectives.

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